ABBREVIATION LIST

A	AMPERE
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONING
AF	AMPERE FRAME, CKT. BKR. RATING
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AM	AMMETER
ANN	ANNUNCIATOR
AMP	AMPERES, AMPERAGE
APPD	APPROVED
AS	AMMETER SWITCH
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CAB	CABINET
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CO	CONDUIT ONLY
COND	CONDUIT
COMPT	COMPARTMENT
COMPR	COMPRESSOR
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DH	DATA HIGHWAY
DISC	DISCONNECT
DISTR	DISTRIBUTION
DPDT	DOUBLE POLE DOUBLE THROW
DWG	DRAWING
E	EMPTY
EF	EXHAUST FAN
ELEV	ELEVATION
EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EP	EXPLOSION PROOF
EQPT	EQUIPMENT
ER	CONDUCTANCE RELAY
ETM	ELAPSED TIME METER
EHU	ELECTRIC HEATING UNIT
EXH	EXHAUST
EXIST	EXISTING
FDR	FEEDER
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FUT	FUTURE
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
FWD	FORWARD
GALV	GALVANIZED
GEN	GENERATOR
GND	GROUND
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HG	MERCURY
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HT TR	HEAT TRACED
HVAC	HEATING, VENTILATING, A/C
HZ	HERTZ - CYCLES PER SECOND
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IND	INDICATION, INDICATING
I/O	INPUT/OUTPUT
INST	INSTANTANEOUS
INSTR	INSTRUMENT
I_{SC}	SHORT CIRCUIT CURRENT
INVT	INVERT

JB	JUNCTION BOX
J BOX	JUNCTION BOX
KVA	KILO VOLT AMPERES
KW	KILOWATTS
KWH	KILOWATT HOUR
KCMIL	1,000 CIRCULAR MILS
LC	LIGHTING CONTACTOR
LCB	LOCAL CONTROL BOARD
LCP	LOCAL CONTROL PANEL
LOC	LOCAL
LO	LOCKOUT
LOS	LOCKOUT STOP
LS	LEVEL SWITCH
LT	LIGHT
LTG	LIGHTING
LTS	LIGHTS
M	MOTOR CONTACTOR COIL
MA	MILLIAMPS
MAN	MANUAL
MAG	MAGNETIC
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCB	MAIN CONTROL BOARD
MCP	MOTOR CIRCUIT PROTECTOR
MD	MOTORIZED DAMPER
MH	MANHOLE
MH	MOUNTING HEIGHT
MIN	MINIMUM, MINUTES
MLO	MAIN LUGS ONLY
MOV	MOTOR OPERATED VALVE
MR	MULTI-RATIO
MS	MOTOR STARTER
MMS	MANUAL MOTOR STARTER
MTD	MOUNTED
MTR	MOTOR
MTS	MANUAL TRANSFER SWITCH
MUX	MULTIPLEXING PANEL
N	NEUTRAL
NA	NON-AUTOMATIC
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NO	NUMBER
NOS	NUMBERS
NP	NAMEPLATE
NPC	NEVADA POWER COMPANY
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O	OPEN
OC	ON CENTER
CC	CENTER TO CENTER
OL	OVERLOAD RELAY
OSC	OSCILLATION
P	POLE
PB	PUSH BUTTON
PCM	PROCESS CONTROL MODULE
PCP	PROCESS CONTROL PANEL
PF	POWER FACTOR
PH, Ø	PHASE
PNL	PANEL
PNLBD	PANELBOARD
POS	POSITION
PQM	POWER QUALITY MONITOR
POT	POTENTIOMETER
PRI	PRIMARY
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PW	PART WINDING
PWR	POWER FACTOR
REC	RECEPTACLE
RECPTS	RECEPTACLES
REQ'D	REQUIRED
REV	REVERSE
RGS	RIGID GALVANIZED STEEL
RTU	REMOTE TERMINAL UNIT
RVAT	REDUCED VOLTAGE AUTOTRANSFORMER
RVNR	REDUCED VOLTAGE NON-REVERSING
RVSS	REDUCED VOLTAGE SOLID STATE
SCH	SCHEDULE
SEC	SECONDARY, SECONDS
SECT	SECTION
SEL SW	SELECTOR SWITCH
SEQ	SEQUENCE
SH	SHIELD
SHLD	SHIELDED

SHT	SHEET
SIG	SIGNAL
S1, S2	START CONTACTOR COILS
SP	SPARE
SPDT	SINGLE POLE DOUBLE THROW
SPECS	SPECIFICATIONS
SP HTR	SPACE HEATER
SPST	SINGLE POLE SINGLE THROW
SS	SOLID STATE
ST	SHUNT TRIP
STA	STATION
STD	STANDARD
STL	STEEL
STR	STARTER
SOV	SOLENOID OPERATED VALVE
SW	SWITCH
SYS	SYSTEM
SYM	SYMMETRICAL
TB	TERMINAL BOX
TC	TIME CLOCK
TACH	TACHOMETER
TEMP	TEMPERATURE
TERM	TERMINAL
T'STAT	THERMOSTAT
TR	TIMING RELAY
TD	TIME DELAY
TS	TEMPERATURE SWITCH
TYP	TYPICAL
TDON	TIME DELAY - ON
TDOFF	TIME DELAY - OFF
UG	UNDERGROUND
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
US	UNIT SUBSTATION
V	VOLTAGE, VOLTS
VAR	VAR METER
VFD	VARIABLE FREQUENCY DRIVE
VP	VAPOR PROOF
VS	VOLTMETER SWITCH, VARIABLE SPEED
W	WATTS, WIRE
WHD	WATTHOUR DEMAND METER
WHM	WATTHOUR METER
WP	WEATHERPROOF
XD	TRANSDUCER
XFMR	TRANSFORMER
XFER	TRANSFER
XMTR	TRANSDUCER
XPDR	TRANSPONDER

GENERAL NOTES

1. PRIOR TO BEGINNING EXCAVATION, VERIFY LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING, ETC. PROVIDE EXCAVATION, BACKFILL, SUPPORT, SAWCUTTING, PATCHING, PAVING, ETC. AS REQUIRED. BACKFILL EXCAVATIONS TO 90 PERCENT COMPACTION AND PATCH TO MATCH EXISTING CONDITIONS.
2. ALL DIRT AND DEBRIS SHALL BE REMOVED FROM ALL MANHOLES AND PULLBOXES. DISPOSE OF AS DIRECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.
3. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO BEGINNING WORK.
4. FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
5. CONTRACTOR SHALL VISIT JOB SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED. CONTRACTOR SHALL INCLUDE IN HIS BID COSTS, THE REQUIREMENTS TO MAKE HIS WORK MEET THE EXISTING CONDITIONS.
6. THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT ON THE PLANS.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTIONS
A / 3 / e	A = REFERENCE TO LIGHTING FIXTURE SCHEDULE 3 = LIGHTING PANEL CIRCUIT NUMBER e = SWITCH ASSOCIATED WITH FIXTURE CONTROL
	1' x 4' FLUORESCENT FIXTURE, SURFACE MOUNTED
	FLUOR. FIXTURE, NIGHT LIGHT
	FLUOR. FIXTURE, EMERGENCY LIGHT
	LUMINAIRE, CEILING MOUNTED (SURFACE)
	LUMINAIRE, EXTERIOR WALL MOUNTED (SURFACE)
	LUMINAIRE, CEILING MOUNTED, (RECESSED)
	FLOODLIGHT, MOUNTING AND WATTAGE AS SPECIFIED
	LUMINAIRE, PENDANT MOUNTED, LAMP AS SPECIFIED
	EMERGENCY LIGHTING
	POWERED EMERGENCY EXIT SIGN
SD	SMOKE DETECTOR
	TEL. RECEPTACLE, 3/4" HOME RUN U.O.N.
	SPECIAL SINGLE GANG DEVICE BOX
	DUPLEX RECEPTACLE, MT. HEIGHT SHOWN
	GFCI DUPLEX RECEPTACLE, MT. HEIGHT SHOWN
WP GFI	DUPLEX RECEPTACLE, WEATHERPROOF, GROUND FAULT TYPE
	SPECIAL RECEPTACLE AS NOTED
$	SINGLE POLE SWITCH
$3	THREE-WAY SWITCH
$4	FOUR-WAY SWITCH
$L	LIGHTED SWITCH
$DIM	DIMMER SWITCH
$M	MANUAL MOTOR STARTER
	CONDUIT SEAL
	CONDUIT UNION
T	TRANSFORMER
PC	PHOTOCELL

SYMBOL	DESCRIPTIONS
	DISTRIBUTION PANEL
	LIGHTING AND BRANCH CIRCUIT PANEL
	TERMINAL CABINET, TYPE AS SPECIFIED
5	MOTOR, NUMBER INDICATES HORSEPOWER
1/3	MOTOR, FRACTIONAL HORSEPOWER
F.A.C.P.	FIRE/SECURITY ALARM CONTROL PANEL
T	THERMOSTAT
J	JUNCTION BOX
	INTRUSION DETECTOR, INSTRUMENT, DEVICE AS NOTED
	SHUNT TRIP
H	HEAT DETECTOR
HF	FIRE ALARM PULL STATION
LC	LIGHTING CONTACTOR
MS	MOTION SWITCH, ADJUSTABLE "ON" TIMER
	CONDUIT RUN INTERRUPTED
	CONDUIT, TURNED UP, TOWARD VIEWER
	CONDUIT, TURNED DOWN, AWAY FROM VIEWER
	CROSSHATCHING INDICATES COUNTS OF No. 12 CONDUCTORS IF MORE THAN 3. NO CROSSHATCHING INDICATES 2 No. 12 AND 1 No. 12 GROUND. LONG HATCH IS A NEUTRAL AND / IS GROUND CONDUCTOR
FUT	FUTURE BRANCH CIRCUIT FEEDER OR DUCT EXPOSED
FUT	FUTURE BRANCH CIRCUIT, FEEDER OR DUCT CONCEALED OR BELOW GRADE
EXIST	EXISTING BRANCH CIRCUIT FEEDER OR DUCT EXPOSED
EXIST	EXISTING BRANCH CIRCUIT, FEEDER OR DUCT CONCEALED OR BELOW GRADE
	NEW BRANCH CIRCUIT FEEDER OR DUCT EXPOSED
	NEW BRANCH CIRCUIT, FEEDER OR DUCT CONCEALED OR BELOW GRADE
	EXISTING EQUIPMENT, CONDUIT AND WIRING TO BE REMOVED

SINGLE LINE LEGEND

2	FULL VOLTAGE, NON-REVERSING MOTOR STARTER, SIZE 2 SHOWN, WITH RATINGS AND SIZE AS SPECIFIED OR REQUIRED BY THE APPLICATION.
R	FULL VOLTAGE, REVERSING MOTOR STARTER, SIZES AND RATINGS AS SPECIFIED ON THE DIAGRAM OR BY MOTOR RATINGS.
2	FULL VOLTAGE, 2 - SPEED MOTOR STARTER, SIZE AND RATINGS AS SPECIFIED ON THE DIAGRAM OR BY MOTOR RATINGS.
RV	REDUCED VOLTAGE MOTOR STARTER, NON-REVERSING, TYPE AS SPECIFIED, RATINGS IN ACCORDANCE WITH APPLICATION.
RVSS	REDUCED VOLTAGE MOTOR STARTER, NON-REVERSING, SOLID STATE WITH STARTING CHARACTERISTICS AND RATINGS AS SPECIFIED.
52	MEDIUM VOLTAGE CIRCUIT BREAKER, CONTINUOUS RATING AS INDICATED
150A / 3P / I=500	LOW VOLTAGE THERMAL MAGNETIC CIRCUIT BREAKER, TRIP RATING, INSTANTANEOUS TRIP, AND NUMBER OF POLES AS INDICATED.
15A / MCP / T=75	LOW VOLTAGE MOTOR CIRCUIT PROTECTOR, CONTINUOUS RATING AND TRIP SETTING AS INDICATED
1000A / LSIG	LOW VOLTAGE ELECTRONIC CIRCUIT BREAKER, RATING PLUG AND TRIP CURVES AS INDICATED: L - LONG TIME I - INSTANTANEOUS S - SHORT TIME G - GROUND
	DISCONNECT SWITCH, NUMBER OF POLES AND RATINGS AS SPECIFIED OR REQUIRED BY THE APPLICATION. "F" DENOTES FUSED.
	TRANSFORMER, NUMBER OF PHASES, CONFIGURATION, RATINGS, AND IMPEDANCE AS INDICATED OR SPECIFIED.
75	MOTOR. TYPE AS REQUIRED BY THE APPLICATION, HORSEPOWER AND FULL LOAD AMPERES ( ) AS SHOWN ON THE DIAGRAM.
GEN	GENERATOR. KW AS SHOWN ON THE DIAGRAM.
##	PROTECTIVE RELAY, TYPE AS NOTED BY ##: 50 - INSTANTANEOUS OVERCURRENT 51 - TIME OVERCURRENT 49 - TEMPERATURE 63 - SUDDEN PRESSURE 63X - SUDDEN PRESSURE AUX RELAY 71 - LIQUID LEVEL
	CONTROL DEVICE, LOCATION AS INDICATED ON THE DIAGRAM, STOP-START.
	CONTROL DEVICE, LOCATION AND FUNCTION AS INDICATED ON THE DIAGRAM.
	CONTROL DEVICE, LOCATION AS INDICATED ON THE DIAGRAM, HAND-OFF-AUTO.
	CONTROL DEVICE, LOCATION AND TYPE AS INDICATED ON THE PLANS OR DIAGRAM.
	LOCAL INDICATING PILOT LIGHT, COLOR AND TYPE AS SPECIFIED OR INDICATED ON THE DIAGRAM.
	INDICATING PILOT LIGHT, COLOR AND TYPE AS SPECIFIED ON THE DIAGRAM.
	OUTLINE OF FUTURE ELECTRICAL AND MECHANICAL EQUIPMENT
	SPACE HEATER, VOLTAGE AND RATING AS INDICATED ON THE DIAGRAM.
	WINDING TEMPERATURE SENSOR, TYPE AS SUPPLIED BY MOTOR MANUFACTURER.
	FIELD INSTRUMENT, PRESSURE, TEMPERATURE, FLOW, LEVEL SWITCH OR TRANSMITTER AS INDICATED ON THE DIAGRAM OR PLANS.
SS	DENOTES BREAKER SHALL BE SOLID STATE TRIP
GF	DENOTES BREAKER SHALL BE EQUIPPED WITH GROUND FAULT MONITORING AND TRIP
ST	DENOTES BREAKER SHALL BE EQUIPPED WITH SHUNT TRIP - INCLUDING CONTROL POWER TRANSFORMER AND FIELD WIRING TERMINALS FOR REMOTE PUSHBUTTON.
	EQUIPMENT OUTLINE
	VENDOR PACKAGED EQUIPMENT
	SURGE ARRESTER
	VACUUM CONTACTOR, 5kV, 3-POLE, RATINGS AND OPERATING MECHANISM AS DESCRIBED IN SPECIFICATIONS
	VACUUM CONTACTOR, MECHANICAL LATCH, 5kV, 3-POLE, RATINGS AND OPERATING MECHANISM AS DESCRIBED IN SPECIFICATIONS
	GANG OPERATED LOAD BREAK SWITCH, 3-POLE, WITH REPLACEABLE ARC SUPPRESSION
	GANG OPERATED SWITCH, 3-POLE, NON-LOAD BREAK
300/5 CT (3)	INSTRUMENT CLASS CURRENT TRANSFORMER, RATINGS AND BURDEN TO MATCH SYSTEM AND MONITORING DEVICES ONE PER PHASE PROVIDE WITH GROUND SHORTING TERMINAL STRIP
50/5 GSCT	GROUND SENSING CURRENT TRANSFORMER, INSTRUMENT CLASS, RATINGS TO MATCH INSTRUMENT BURDEN
X/5 BCT	BUSHING CURRENT TRANSFORMER (BCT), METERING CLASS, RATINGS AS INDICATED, FOR DIFFERENTIAL SERVICE ACROSS DELTA-WYE TRANSFORMER, PROVIDE MIRRORED WYE-DELTA CONNECTIONS, ALL CT'S TO BE TERMINATED ON GROUND SHORTING TERMINAL STRIPS
2	VOLTAGE TRANSFORMER, INSTRUMENT CLASS, FUSED PRIMARY AND SECONDARY, OPEN DELTA CONFIGURATION
R / S	REDUCED VOLTAGE, NON-REVERSING AUTOTRANSFORMER TYPE STARTER WITH VACUUM CONTACTOR, OPEN-TRANSITION CONFIGURATION, AND FACTORY PREWIRED TAP SELECTION AT 65% FURNISH HEAVY DUTY STARTER WITH HIGH WINDING TEMPERATURE THERMISTOR AND ALARM RELAY
M	MOTOR CONTACTOR COIL
M	MOTORIZED OPERATOR
MTS 600A	TRANSFER SWITCH, AMPERE RATING AS NOTED: MTS: MANUAL ATS: AUTOMATIC

ELECTRICAL SCHEMATIC LEGEND

	LEVEL SWITCH, LSHH, LSH, LSL N.O. OR N.C. AS INDICATED
	FLOW SWITCH, N.C. OR N.O. AS INDICATED
	PRESSURE SWITCH, PSL, PSH, N.O. OR N.C. AS INDICATED
	TEMPERATURE SWITCH, TSH, TSL, N.O. OR N.C. AS INDICATED
	LIMIT SWITCH, N.C. OR N.O. AS INDICATED
	RELAY/CONTROL CONTACT, N.C. OR N.O. AS INDICATED
	TIME DELAY CONTACT, TIME DELAY ON/OFF, N.C./N.O. AS INDICATED
R1 ( )	RELAY COIL, FUNCTION, NUMBER AND CONTACTS ( ) AS SHOWN
	INDICATING LIGHT, LENS COLORS (R) RED, (G) GREEN, (W) WHITE
	PUSHBUTTON, MOMENTARY, N.O. OR N.C., L.O. = LOCKOUT
	PUSHBUTTON, MAINTAINED UNIVERSAL CONTACT
	ON-OFF SELECTOR SWITCH, MAINTAINED, FUNCTION AS SHOWN
L O R X	SELECTOR SWITCH, MAINTAINED L-O-R = LOCAL-OFF-REMOTE, OR OTHER FUNCTION AS DESIGNATED
	FUSE, SIZE AS NOTED
	CONTROL POWER TRANSFORMER RATINGS AS INDICATED
	TERMINAL IN RELAY PANEL
	TERMINAL IN RTU
	TERMINAL IN PLC
	TERMINAL IN MOTOR STARTER
	TERMINAL AT FIELD DEVICE
	TERMINAL - EQUIPMENT OR DEVICE
	GROUND CONNECTION
	CIRCUIT BREAKER
	OVERLOAD ELEMENT
	AUTOTRANSFORMER WITH MULTIPLE TAPS SHOWN
	PREWIRED - BY OEM / INTEGRATOR
	FIELD WIRING
PP I: NNN/XX PP XX XX	PLC INPUT & ADDRESS
O: MMM/RR QO QO XX XX	PLC OUTPUT & ADDRESS

E01-1 041707

FOR REFERENCE ONLY